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NUCLEIC ACID MOLECULES ENCODING THESE HUMAN RAS-LIKE  
PROTEINS, AND USES THEREOF

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gctcctgtgc	cgctgcctc	ctgtgtgtgc	tccatccctg	cagcccagtc	ggttccctct	20220
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ctcccccatg	tgtccccact	ggcctttgca	catgggagaa	gggcatgtgc	tcagcatatc	20520
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gatgtccctg	taggtgggag	ggacagggag	atgcagcagc	tgcccgggtga	ccttttctgc	20700
ccttgatggg	caaagctggg	ggtagggaaa	ggagacaagt	gctcatactt	acctccctcc	20760
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 <211> 609  
 <212> PRT  
 <213> Human

<400> 4  
 Met Ala Gly Thr Leu Asp Leu Asp Lys Gly Cys Thr Val Glu Glu Leu

10

Gly	Asp	Leu	Asp	Gln	Asn	Gln	Asp	Gly	Cys	Ile	Ser	Arg	Glu	Glu	Met
465					470				475						480
Val	Ser	Tyr	Phe	Leu	Arg	Ser	Ser	Ser	Val	Leu	Gly	Gly	Arg	Met	Gly
				485					490						495
Phe	Val	His	Asn	Phe	Gln	Glu	Ser	Asn	Ser	Leu	Arg	Pro	Val	Ala	Cys
			500					505					510		
Arg	His	Cys	Lys	Ala	Leu	Ile	Leu	Gly	Ile	Tyr	Lys	Gln	Gly	Leu	Lys
		515					520					525			
Cys	Arg	Ala	Cys	Gly	Val	Asn	Cys	His	Lys	Gln	Cys	Lys	Asp	Arg	Leu
	530					535					540				
Ser	Val	Glu	Cys	Arg	Arg	Arg	Ala	Gln	Ser	Val	Ser	Leu	Glu	Gly	Ser
545					550					555					560
Ala	Pro	Ser	Pro	Ser	Pro	Met	His	Ser	His	His	His	Arg	Ala	Phe	Ser
				565					570						575
Phe	Ser	Leu	Pro	Arg	Pro	Gly	Arg	Arg	Gly	Ser	Arg	Pro	Pro	Glu	Ile
			580				585						590		
Arg	Glu	Glu	Glu	Val	Gln	Thr	Val	Glu	Asp	Gly	Val	Phe	Asp	Ile	His
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Leu

<210> 5  
 <211> 664  
 <212> PRT  
 <213> Human

<400> 5

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			20					25					30		
Val	Arg	Ser	Glu	Pro	Gly	Gly	Arg	Leu	Pro	Glu	Arg	Ser	Leu	Gly	Pro
		35					40					45			
Ala	His	Pro	Ala	Pro	Ala	Ala	Met	Ala	Gly	Thr	Leu	Asp	Leu	Asp	Lys
	50					55					60				
Gly	Cys	Thr	Val	Glu	Glu	Leu	Leu	Arg	Gly	Cys	Ile	Glu	Ala	Phe	Asp
65				70					75						80
Asp	Ser	Gly	Lys	Val	Arg	Asp	Pro	Gln	Leu	Val	Arg	Met	Phe	Leu	Met
				85				90						95	
Met	His	Pro	Trp	Tyr	Ile	Pro	Ser	Ser	Gln	Leu	Ala	Ala	Lys	Leu	Leu
		100					105						110		
His	Ile	Tyr	Gln	Gln	Ser	Arg	Lys	Asp	Asn	Ser	Asn	Ser	Leu	Gln	Val
		115					120					125			
Lys	Thr	Cys	His	Leu	Val	Arg	Tyr	Trp	Ile	Ser	Ala	Phe	Pro	Ala	Glu
	130					135					140				
Phe	Asp	Leu	Asn	Pro	Glu	Leu	Ala	Glu	Gln	Ile	Lys	Glu	Leu	Lys	Ala
145					150					155					160
Leu	Leu	Asp	Gln	Glu	Gly	Asn	Arg	Arg	His	Ser	Ser	Leu	Ile	Asp	Ile
			165					170						175	
Asp	Ser	Val	Pro	Thr	Tyr	Lys	Trp	Lys	Arg	Gln	Val	Thr	Gln	Arg	Asn
		180						185					190		
Pro	Val	Gly	Gln	Lys	Lys	Arg	Lys	Met	Ser	Leu	Leu	Phe	Asp	His	Leu
		195					200					205			
Glu	Pro	Met	Glu	Leu	Ala	Glu	His	Leu	Thr	Tyr	Leu	Glu	Tyr	Arg	Ser
	210					215					220				
Phe	Cys	Lys	Ile	Leu	Phe	Gln	Asp	Tyr	His	Ser	Phe	Val	Thr	His	Gly

225					230					235				240
Cys	Thr	Val	Asp	Asn	Pro	Val	Leu	Glu	Arg	Phe	Ile	Ser	Leu	Phe
				245					250					255
Ser	Val	Ser	Gln	Trp	Val	Gln	Leu	Met	Ile	Leu	Ser	Lys	Pro	Thr
			260					265					270	
Pro	Gln	Arg	Ala	Leu	Val	Ile	Thr	His	Phe	Val	His	Val	Ala	Glu
		275					280					285		Lys
Leu	Leu	Gln	Leu	Gln	Asn	Phe	Asn	Thr	Leu	Met	Ala	Val	Val	Gly
	290					295					300			Gly
Leu	Ser	His	Ser	Ser	Ile	Ser	Arg	Leu	Lys	Glu	Thr	His	Ser	His
305					310					315				Val
Ser	Pro	Glu	Thr	Ile	Lys	Leu	Trp	Glu	Gly	Leu	Thr	Glu	Leu	Val
				325					330					335
Ala	Thr	Gly	Asn	Tyr	Gly	Asn	Tyr	Arg	Arg	Arg	Leu	Ala	Ala	Cys
			340					345					350	Val
Gly	Phe	Arg	Phe	Pro	Ile	Leu	Gly	Val	His	Leu	Lys	Asp	Leu	Val
	355					360						365		Ala
Leu	Gln	Leu	Ala	Leu	Pro	Asp	Trp	Leu	Asp	Pro	Ala	Arg	Thr	Arg
	370					375					380			Leu
Asn	Gly	Ala	Lys	Met	Lys	Gln	Leu	Phe	Ser	Ile	Leu	Glu	Glu	Leu
385					390					395				Ala
Met	Val	Thr	Ser	Leu	Arg	Pro	Pro	Val	Gln	Ala	Asn	Pro	Asp	Leu
			405						410					Leu
Ser	Leu	Leu	Thr	Val	Ser	Leu	Asp	Gln	Tyr	Gln	Thr	Glu	Asp	Glu
			420					425					430	Leu
Tyr	Gln	Leu	Ser	Leu	Gln	Arg	Glu	Pro	Arg	Ser	Lys	Ser	Ser	Pro
	435						440					445		Thr
Ser	Pro	Thr	Ser	Cys	Thr	Pro	Pro	Pro	Arg	Pro	Pro	Val	Leu	Glu
	450					455					460			Glu
Trp	Thr	Ser	Ala	Ala	Lys	Pro	Lys	Leu	Asp	Gln	Ala	Leu	Val	Val
465					470					475				Glu
His	Ile	Glu	Lys	Met	Val	Glu	Ser	Val	Phe	Arg	Asn	Phe	Asp	Val
			485						490				495	Asp
Gly	Asp	Gly	His	Ile	Ser	Gln	Glu	Glu	Phe	Gln	Ile	Ile	Arg	Gly
			500					505					510	Asn
Phe	Pro	Tyr	Leu	Ser	Ala	Phe	Gly	Asp	Leu	Asp	Gln	Asn	Gln	Asp
	515						520					525		Gly
Cys	Ile	Ser	Arg	Glu	Glu	Met	Val	Ser	Tyr	Phe	Leu	Arg	Ser	Ser
	530					535					540			Ser
Val	Leu	Gly	Gly	Arg	Met	Gly	Phe	Val	His	Asn	Phe	Gln	Glu	Ser
545					550					555				Asn
Ser	Leu	Arg	Pro	Val	Ala	Cys	Arg	His	Cys	Lys	Ala	Leu	Ile	Leu
				565					570					Gly
Ile	Tyr	Lys	Gln	Gly	Leu	Lys	Cys	Arg	Ala	Cys	Gly	Val	Asn	Cys
			580					585					590	His
Lys	Gln	Cys	Lys	Asp	Arg	Leu	Ser	Val	Glu	Cys	Arg	Arg	Arg	Ala
	595					600						605		Gln
Ser	Val	Ser	Leu	Glu	Gly	Ser	Ala	Pro	Ser	Pro	Ser	Pro	Met	His
	610					615					620			Ser
His	His	His	Arg	Ala	Phe	Ser	Phe	Ser	Leu	Pro	Arg	Pro	Gly	Arg
625				630						635				Arg
Gly	Ser	Arg	Pro	Pro	Glu	Ile	Arg	Glu	Glu	Glu	Val	Gln	Thr	Val
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Asp	Gly	Val	Phe	Asp	Ile	His	Leu							
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 <212> PRT  
 <213> Mus musculus

<400> 6  
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 35 40 45  
 Ser Ser Gln Leu Ala Ser Lys Leu Leu His Phe Tyr Gln Gln Ser Arg  
 50 55 60  
 Lys Asp Asn Ser Asn Ser Leu Gln Val Lys Thr Cys His Leu Val Arg  
 65 70 75 80  
 Tyr Trp Val Ser Ala Phe Pro Ala Glu Phe Asp Leu Asn Pro Glu Leu  
 85 90 95  
 Ala Glu Pro Ile Lys Glu Leu Lys Ala Leu Leu Asp Gln Glu Gly Asn  
 100 105 110  
 Arg Arg His Ser Ser Leu Ile Asp Ile Glu Ser Val Pro Thr Tyr Lys  
 115 120 125  
 Trp Lys Arg Gln Val Thr Gln Arg Asn Pro Val Glu Gln Lys Lys Arg  
 130 135 140  
 Lys Met Ser Leu Leu Phe Asp His Leu Glu Pro Met Glu Leu Ala Glu  
 145 150 155 160  
 His Leu Thr Tyr Leu Glu Tyr Arg Ser Phe Cys Lys Ile Leu Phe Gln  
 165 170 175  
 Asp Tyr His Ser Phe Val Thr His Gly Cys Thr Val Asp Asn Pro Val  
 180 185 190  
 Leu Glu Arg Phe Ile Ser Leu Phe Asn Ser Val Ser Gln Trp Val Gln  
 195 200 205  
 Leu Met Ile Leu Ser Lys Pro Thr Ala Thr Gln Arg Ala Leu Val Ile  
 210 215 220  
 Thr His Phe Val His Val Ala Glu Lys Leu Leu Gln Leu Gln Asn Phe  
 225 230 235 240  
 Asn Thr Leu Met Ala Val Val Gly Gly Leu Ser His Ser Ser Ile Ser  
 245 250 255  
 Arg Leu Lys Glu Thr His Ser His Val Ser Pro Asp Thr Ile Lys Leu  
 260 265 270  
 Trp Glu Gly Leu Thr Glu Leu Val Thr Ala Thr Gly Asn Tyr Ser Asn  
 275 280 285  
 Tyr Arg Arg Arg Leu Ala Ala Cys Val Gly Phe Arg Phe Pro Ile Leu  
 290 295 300  
 Gly Val His Leu Lys Asp Leu Val Ala Leu Gln Leu Ala Leu Pro Asp  
 305 310 315 320  
 Trp Leu Asp Pro Gly Arg Thr Arg Leu Asn Gly Ala Lys Met Arg Gln  
 325 330 335  
 Leu Phe Ser Ile Leu Glu Glu Leu Ala Met Val Thr Ser Leu Arg Pro  
 340 345 350  
 Pro Val Gln Ala Asn Pro Asp Leu Leu Ser Leu Leu Thr Val Ser Leu  
 355 360 365  
 Asp Gln Tyr Gln Thr Glu Asp Glu Leu Tyr Gln Leu Ser Leu Gln Arg  
 370 375 380  
 Glu Pro Arg Ser Lys Ser Ser Pro Thr Ser Pro Thr Ser Cys Thr Pro  
 385 390 395 400  
 Pro Pro Arg Pro Pro Val Leu Glu Glu Trp Thr Ser Val Ala Lys Pro





<400> 8

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		20						25					30		
Met	Met	Val	Ser	Leu	Gly	His	Leu	Ala	Lys	Gly	Ala	Ser	Leu	Asp	Asp
		35					40					45			
Leu	Ile	Asp	Ser	Cys	Ile	Gln	Ser	Phe	Asp	Ala	Asp	Gly	Asn	Leu	Cys
	50					55					60				
Arg	Ser	Asn	Gln	Leu	Leu	Gln	Val	Met	Leu	Thr	Met	His	Arg	Ile	Ile
65					70					75					80
Ile	Ser	Ser	Ala	Glu	Leu	Leu	Gln	Lys	Leu	Met	Asn	Leu	Tyr	Lys	Asp
			85						90					95	
Ala	Leu	Glu	Lys	Asn	Ser	Pro	Gly	Ile	Cys	Leu	Lys	Ile	Cys	Tyr	Phe
			100					105					110		
Val	Arg	Tyr	Trp	Ile	Thr	Glu	Phe	Trp	Ile	Met	Phe	Lys	Met	Asp	Ala
		115					120					125			
Ser	Leu	Thr	Ser	Thr	Met	Glu	Glu	Phe	Gln	Asp	Leu	Val	Lys	Ala	Asn
	130				135						140				
Gly	Glu	Glu	Ser	His	Cys	His	Leu	Ile	Asp	Thr	Thr	Gln	Ile	Asn	Ser
145					150					155					160
Arg	Asp	Trp	Ser	Arg	Lys	Leu	Thr	Gln	Arg	Ile	Lys	Ser	Asn	Thr	Ser
			165						170					175	
Lys	Lys	Arg	Lys	Val	Ser	Leu	Leu	Phe	Asp	His	Leu	Glu	Pro	Glu	Glu
			180					185					190		
Leu	Ser	Glu	His	Leu	Thr	Tyr	Leu	Glu	Phe	Lys	Ser	Phe	Arg	Arg	Ile
	195						200					205			
Ser	Phe	Ser	Asp	Tyr	Gln	Asn	Tyr	Leu	Val	Asn	Ser	Cys	Val	Lys	Glu
	210					215					220				
Asn	Pro	Thr	Met	Glu	Arg	Ser	Ile	Ala	Leu	Cys	Asn	Gly	Ile	Ser	Gln
225					230					235					240
Trp	Val	Gln	Leu	Met	Val	Leu	Ser	Arg	Pro	Thr	Pro	Gln	Leu	Arg	Ala
			245						250					255	
Glu	Val	Phe	Ile	Lys	Phe	Ile	His	Val	Ala	Gln	Lys	Leu	His	Gln	Leu
			260					265					270		
Gln	Asn	Phe	Asn	Thr	Leu	Met	Ala	Val	Ile	Gly	Gly	Leu	Cys	His	Ser
	275					280						285			
Ser	Ile	Ser	Arg	Leu	Lys	Glu	Thr	Ser	Ser	His	Val	Pro	His	Glu	Ile
	290					295					300				
Asn	Lys	Val	Leu	Gly	Glu	Met	Thr	Glu	Leu	Leu	Ser	Ser	Cys	Arg	Asn
305					310					315					320
Tyr	Asp	Asn	Tyr	Arg	Arg	Ala	Tyr	Gly	Glu	Cys	Thr	His	Phe	Lys	Ile
			325						330					335	
Pro	Ile	Leu	Gly	Val	His	Leu	Lys	Asp	Leu	Ile	Ser	Leu	Tyr	Glu	Ala
			340					345					350		
Met	Pro	Asp	Tyr	Leu	Glu	Asp	Gly	Lys	Val	Asn	Val	Gln	Lys	Leu	Leu
		355					360					365			
Ala	Leu	Tyr	Asn	His	Ile	Asn	Glu	Leu	Val	Gln	Leu	Gln	Asp	Val	Ala
	370					375					380				
Pro	Pro	Leu	Asp	Ala	Asn	Lys	Asp	Leu	Val	His	Leu	Leu	Thr	Leu	Ser
385					390					395					400
Leu	Asp	Leu	Tyr	Tyr	Thr	Glu	Asp	Glu	Ile	Tyr	Glu	Leu	Ser	Tyr	Ala
			405						410					415	
Arg	Glu	Pro	Arg	Asn	His	Arg	Ala	Pro	Pro	Leu	Thr	Pro	Ser	Lys	Pro
			420					425					430		
Pro	Val	Val	Val	Asp	Trp	Ala	Ser	Gly	Val	Ser	Pro	Lys	Pro	Asp	Pro
		435					440					445			



Lys	Thr	Ile	Ser	Lys	His	Val	Gln	Arg	Met	Val	Asp	Ser	Val	Phe	Lys
450						455					460				
Asn	Tyr	Asp	Leu	Asp	Gln	Asp	Gly	Tyr	Ile	Ser	Gln	Glu	Glu	Phe	Glu
465					470					475					480
Lys	Ile	Ala	Ala	Ser	Phe	Pro	Phe	Ser	Phe	Cys	Val	Met	Asp	Lys	Asp
				485					490					495	
Arg	Glu	Gly	Leu	Ile	Ser	Arg	Asp	Glu	Ile	Thr	Ala	Tyr	Phe	Met	Arg
			500					505					510		
Ala	Ser	Ser	Ile	Tyr	Ser	Lys	Leu	Gly	Leu	Gly	Phe	Pro	His	Asn	Phe
		515					520					525			
Gln	Glu	Thr	Thr	Tyr	Leu	Lys	Pro	Thr	Phe	Cys	Asp	Asn	Cys	Ala	Gly
	530					535					540				
Phe	Leu	Trp	Gly	Val	Ile	Lys	Gln	Gly	Tyr	Arg	Cys	Lys	Asp	Cys	Gly
545					550				555						560
Met	Asn	Cys	His	Lys	Gln	Cys	Lys	Asp	Leu	Val	Val	Phe	Glu	Cys	Lys
				565					570					575	
Lys	Arg	Ser	Lys	Ser											
				580											